

Date: Wednesday, 18/03/2009 11:52:43 AM  
 User: Julie Dawson

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : BUBBLE DOOR 412 VERTICLE REFERENCE  
 Job Number : 46558  
 Estimate Number : 13138  
 P.O. Number :  
 This Issue : 18/03/2009 S.O. No. :  
 Prsht Rev. : NC Part Number : D36761  
 First Issue : / / Type : THERMOFORMING Drawing Number : D3676 PRELIMINARY  
 Previous Run : 41414 Drawing Revision : PRELIMINARY  
 Material :  
 Due Date : 25/03/2009 Qty: 1 Um: Each  
 Written By :  
 Checked & Approved By : MD 09.03.18  
 Comment : Est. Rev A New Product 01/24/2008 DL Verified:JLM  
 Est. Rev B Change Mat. to .236" 08/29/2008 DL

Additional Product

SCRAP 109.04.09

PRELIMINARY ISSUE



Job Number:



Seq. #: Machine Or Operation: Description :

1.0 MACRLICS236 Plexiglass G .236"



M 108784



PTD →

Comment: Qty.: 13.0000 sf(s)/Unit Total : 13.0000 sf(s)  
 Plexiglass G .236"

OK 09/03/17

2.0 HAND FINISH TH HAND FINISHING THERMOFORMING



Comment: HAND FINISHING THERMOFORMING

Set up Machine as per folio FTA 018 and D3676 program

OK 09/03/17

3.0 HAND FINISH TH HAND FINISHING THERMOFORMING



Comment: HAND FINISHING THERMOFORMING

1) Cut Blanks to 30" by 48"

OK 09/03/17

4.0 THERMOFORMING THERMOFORMING MACHINE



Comment: THERMOFORMING MACHINE

Thermoform as per Dwg. D3676 and Folio FTA 018

Dwg. Rev. B PrelimFolio Rev. 3

OK 09/03/17

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09/03/17	1	Substitute .177" material for structural testing.		use part for testing only.	09/03/17 W.			

NOTE: Date & initial all entries

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Drawing Name: BUBBLE DOOR 412 VERTICLE REFERENCE

Job Number: 46558

Part Number: D36761

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

- 1) Check Surface finish for undesired marks, voids, dimples etc.
- 2) Check depth of bubble to ensure conformity to drawing tolerances.

09/03/17  
OK

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

09.03.23  
In test temp.

7.0

HAND FINISH TH

HAND FINISHING THERMOFORMING



Comment: HAND FINISHING THERMOFORMING

- 1) Trim off excess flange material
- 2) Buff out any light scratches or blemishes
- 3) Etch part number and batch number

BB 09/03/18 (A1)

8.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

- 1) Visually inspect for clarity, and proper formation.

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

NWDAN USED FOR TESTING  
AND LOCATED IN ENG LAB.

09.04.03

11.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



POSITIVE RECALL

EFFECTIVE 09.03.08

RELEASED

AUTH

DATE

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# PROTOTYPE REQUEST FORM

DART Aerospace Ltd.

Product #: D3676-1 (REF. D412-761-045)

Job #: 002246

Date: 09.03.17

Product Name: BUBBLE WINDOW

Requested By: 

Design Manager Approval: 

Quantity	Part Number	Category	Description	Drawing Date	Material Cert Req'd?	Due Date	Comments	Date Completed
1	D3676-1	THERMOFORMING	BUBBLE WINDOW	08.10.27	YES	09.03.23	REQUIRED FOR TESTING WITH CUTOUT AND ROUND	
							VENTS (ONE FWD BOTTOM AND ONE AFT TOP)	
							RECORD LOCATION OF VENTS.	

DART AEROSPACE LTD	Work Order: 46558
Description:	Part Number: D3676-1
Inspection Dwg: BD3676 Rev: B	Page 1 of 1

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

### THERMOFORMING SECTION

Description	Accept	Reject	Method of Inspection	Comments
Inside Radii less than "	✓			
Shape Definition	✓			
Texture Retention	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

Measured by: BB Date: 09/03/23

### TRIMMING SECTION

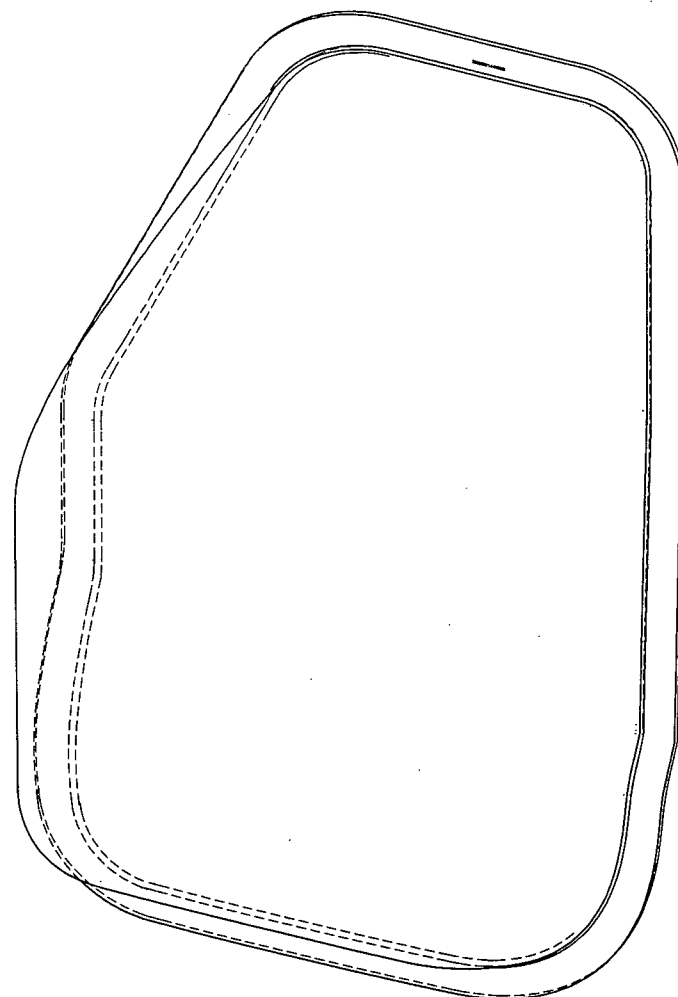
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
46		46.1	✓			
29.1		29.125	✓			
17. <del>16.625</del>	+ .5	16.625	✓			

Measured by: BB Date: 09/03/23

Audited by: J0903.23 Date:

Prototype Approval: Date:

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/DL	



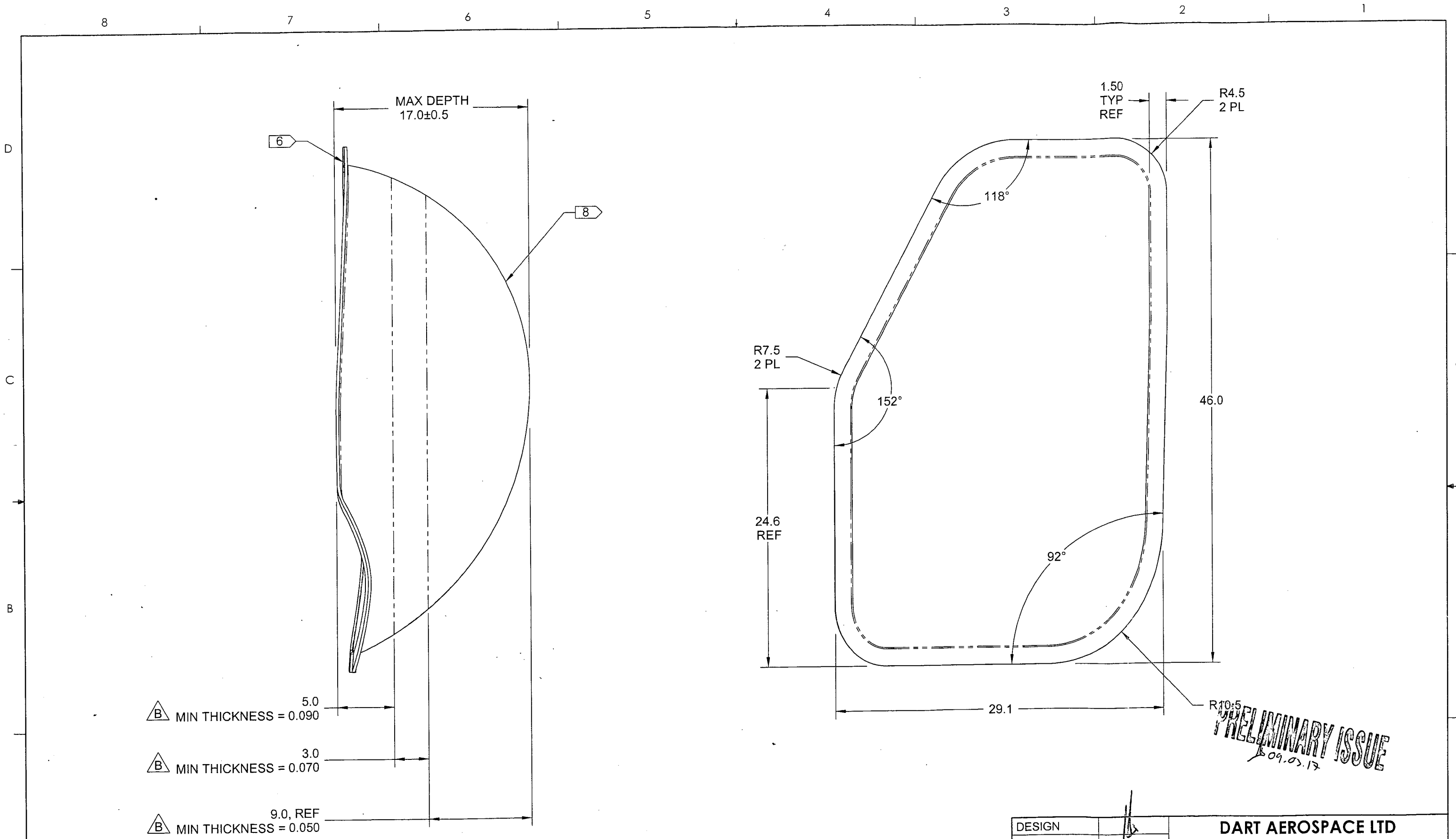
**D3676-1 412 BUBBLE WINDOW**

**NOTES:**

- 1) MATERIAL: PLEXIGLAS G CLEAR CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C  
OR POLYCAST II CLEAR ACRYLIC SHEET PER MIL-P-5425,  
0.236 THICK (STOCK REF. DART SPEC. M-ACRYLIC-S.236)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
- 6) IDENTIFICATION: ENGRAVE P/N "D3676-1" & B/N "BXXXXX" ON FLANGE WITHIN 0.25" OF BUBBLE.  
USE 0.125" LETTERS TO MAX. DEPTH OF 0.005"
- 7) WEIGHT: 11.0 lbs
- 8) VACUUM FORM PER FOLIO FTA018 USING DT8992 MOLD AND DART QSI 022

**PRELIMINARY ISSUE**  
10.03.17

B	REVISED TOLERANCE ON MINIMUM THICKNESSES (ZN A8/B8-2). REASON: PRODUCTION FACILITY.	MB	08.10.27
A	NEW ISSUE	MB	08.02.29
REV.	DESCRIPTION	BY	DATE
DESIGN		<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN			
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D3676	SHEET 1 OF 2
APPROVED		TITLE	SCALE
DE APPR.		412 BUBBLE WINDOW	NTS
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**D3676-1 412 BUBBLE WINDOW**

DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		<b>D3676</b>	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		<b>412 BUBBLE WINDOW</b>	NTS
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**PRELIMINARY ISSUE**  
09.03.17



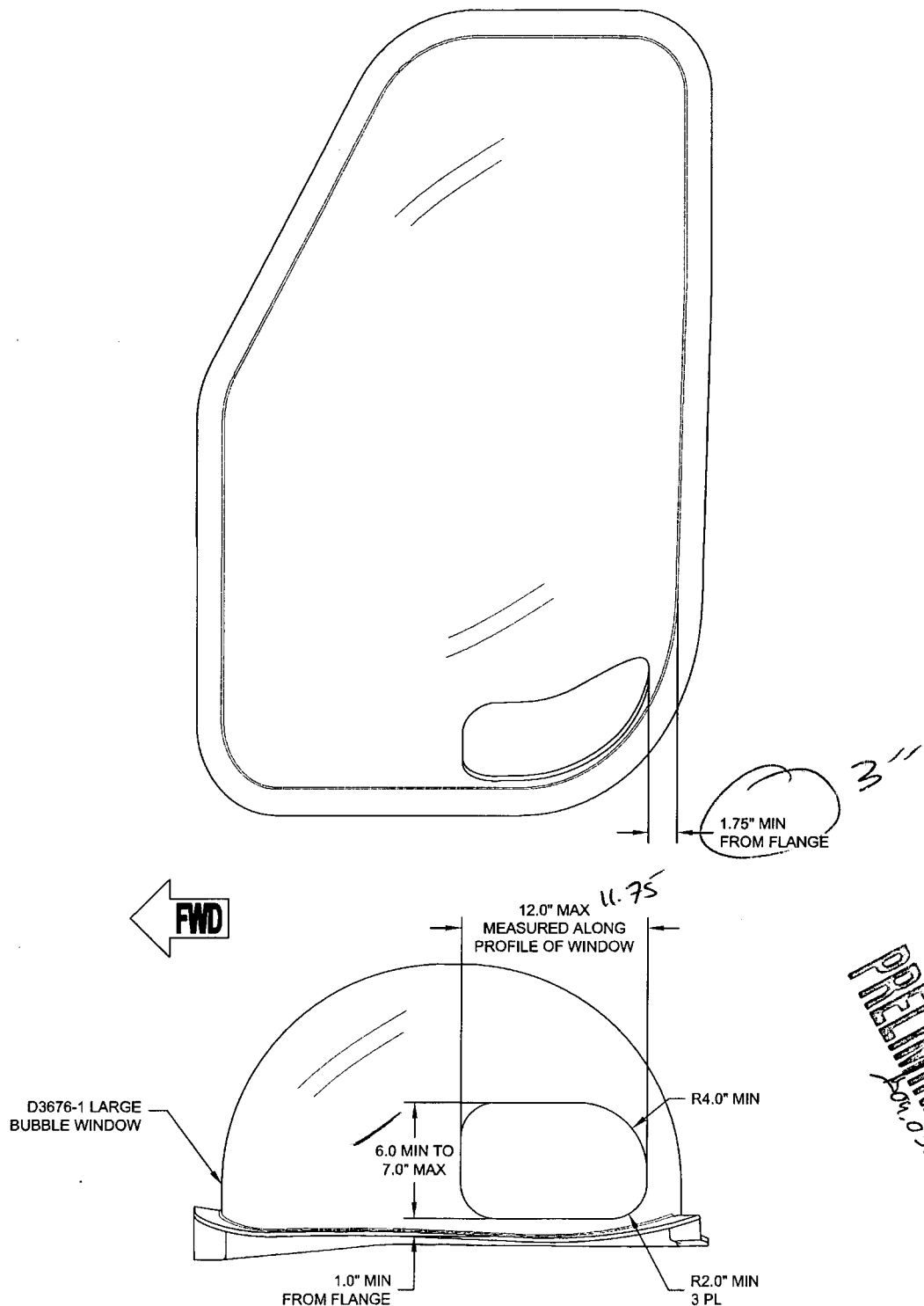


Figure 3 – Acceptable Cutout in D3676-1 Large Bubble Window

سابك  
sabic

**SABIC Polymershapes**

1250 OLD INNES RD. 519 OTTAWA, ONT. K1B 5L3  
TEL: 613 745 7043 FAX: 613 745 8163

## CERTIFICATE OF COMPLIANCE

SOLD TO: DART AEROSPACE

DATE: 8/7/2008

YOUR PURCHASE ORDER : 6838

OUR SHIPPER NO: 1

LINE ITEM # : 1

QUANTITY: 3

DESCRIPTION: PLEXIGLAS GM .177 X 48 X 96

08/08/07

THESE PARTS WERE MANUFACTURED IN ACCORDANCE WITH: PLEXIGLASS GM ASTM-4802 FORMALLY LP 391

THIS IS TO CERTIFY THAT THE MATERIAL FINISHES AND FUNCTIONAL REQUIREMENTS OF THE ABOVE LISTED PARTS ARE IN ACCORDANCE WITH THE REFERENCE PROCUREMENT SPECIFICATIONS, CONTROL DRAWINGS OR PARTS DESIGNATION AND LATEST REVISIONS AS REFERENCED ON THE SUBJECT PURCHASE ORDER.

AUTHORIZED REPRESENTATIVE SIGNATURE

Jon Caldwell

JON CALDWELL  
BRANCH MANAGER